

Exhibit ABJ-1

ADAM B. JAFFE

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PROFESSIONAL EXPERIENCE

Brandeis University, Faculty of Arts and Sciences and Graduate School of International Economics and Finance, Waltham, MA

Professor of Economics (Associate Professor, 1994 - 1998)

Teaching Introductory Economics, Ph.D. Microeconomics and Ph.D. Industrial Organization. Current research examines the temporal and geographic pattern of research spillovers; the use of patent citation data to trace knowledge flows; the impact of deregulation and competition on the electricity and natural gas industries; and the interaction of environmental regulation and innovation.

National Bureau of Economic Research, Cambridge, MA

Project Coordinator, 1994 - present

Coordinating the NBER project on Industrial Technology and Productivity.

Harvard University, Faculty of Arts and Sciences, Cambridge, MA

Associate Professor of Economics, 1989 - 1994

Assistant Professor of Economics, 1985 - 1989

Taught graduate and undergraduate courses in Applied Microeconomics, Industrial Organization, Economics of Innovation, and Government Regulation and Antitrust Policy. (On leave, Academic Year 1990-91; visiting the Kennedy School of Government, 1992-94)

President's Council of Economic Advisers, Washington, DC

Senior Staff Economist, 1990 - 1991

Primary staff responsibility for antitrust issues, science and technology policy, energy policy, and regulatory issues related to telecommunications.

EDUCATION

Harvard University, Cambridge, MA

Ph.D. in Economics, 1985

Dissertation: "Quantifying the Effects of Technological Opportunity and Research Spillovers in Industrial Innovation"

Massachusetts Institute of Technology, Cambridge, MA

S.M. in Technology and Policy, 1978

Thesis: "Regulating Chemicals: Product and Process Technology as a Determinant of the Compliance Response"

S.B. in Chemistry, 1976

TESTIMONY AND CONSULTING EXPERIENCE

Pharmaceutical Research and Manufacturers of America

Prepared research report entitled "Consequences of Pharmaceutical Price Controls on Innovation" (with Catherine Moore), May 1999.

PacifiCorp

Before the Public Utility Commission of Oregon, UE 102, In the Matter of the Application of Portland General Electric Company for Approval of the Customer Choice Plan, Testimony on behalf of PacifiCorp regarding the company's eligibility to participate in an auction of generation assets, April 26, 1999.

Turner Broadcasting System, Inc., et al. (Weil, Gotshal & Manges, New York)

In the United States District Court, Southern District of New York, United States of America against American Society of Composers, Authors, and Publishers, In the Matter of the Application of Turner Broadcasting System, Inc., et al., Applicants, For the Determination of Reasonable License Fees, CIV. NO. 13-95 (WCC), Expert Report prepared on behalf of the applicants in litigation about music licensing fees, April 16, 1999; Deposition, July 26-27, 1999; Rebuttal Expert Report, December 16, 1999.

The American Chemical Society

Developed and evaluated a number of approaches to pricing the web editions of ACS's publications. Modeled the performance of the various pricing plans to assess their ability to protect ACS's publications revenue as web editions replace paper. (1999)

Copyright Clearance Center, Inc. (Weil, Gotshal & Manges, New York, NY)

Primary consultant on statistical and economic matters since 1985; designed and implemented CCC's initial statistical methodology for pricing corporate photocopy licenses; recently assisted the Rightsholders Committee of the Board of Directors in designing a new market-based approach to valuation of copyright licenses and distribution of the resulting royalties. (ongoing)

Procter & Gamble, Inc.

In the Matter Between Unilever PLC. and Lever Brothers Limited, Plaintiffs, and Procter & Gamble, Inc., and the Procter & Gamble Company, Defendants, Court File No. T-2534-85, Expert Report prepared on behalf of the defendants in patent dispute, January 11, 1999; Reply Report, January 29, 1999; Oral Testimony, December 6-7, 1999.

Ironworkers Local Union No. 17 Insurance Fund and its Trustees (Milberg, Weiss, Bershad, Hynes & Lerach, San Diego)

Ironworkers Local Union No. 17 Insurance Fund and its Trustees, et al., vs. Philip Morris, Inc., et al. (Ohio), Expert Report prepared on behalf of the plaintiffs in tobacco litigation, November 6, 1998; Supplemental Report, December 17, 1998; Deposition, January 11 and 21, 1999; Oral testimony, February 23, 1999.

State of Wisconsin (Habush, Habush, Davis & Rottier, Milwaukee, WI)

The State of Wisconsin v. Philip Morris, et al. Prepared Expert Witness Report on behalf of the plaintiffs in tobacco litigation, November 1, 1998.

Trans-Alaska Pipeline (Steptoe & Johnson, Washington, DC)

Prepared Direct Testimony evaluating whether the TAPS Intrastate Settlement and the ratemaking methodology it established produce tariff rates that are just and reasonable, *In the Matter of the Correct Calculation and Use of Acceptable Input Data to Calculate the 1997 and 1998 Tariff Rates for the Intrastate Transportation of Petroleum over the Trans Alaska Pipeline System Filed by Amerada Hess Pipeline Corporation; Arco Transportation Alaska, Inc.; BP Pipelines (Alaska) Inc.; Exxon Pipeline Company; Mobil Alaska Pipeline Company; Phillips Alaska Pipeline Corporation, and Unocal Pipeline Company and the Protest by Tesoro Alaska Petroleum Company of the 1997 Tariff Rates, Before the Alaska Public Utilities Commission, Docket No. P-97-4, October 8, 1998.*

Commonwealth of Massachusetts (Brown, Rudnick, Freed & Gesmer, Boston, MA)

The Commonwealth of Massachusetts vs. Philip Morris Incorporated, et al., Civil Action Number 95-7378. Prepared Expert Disclosure Report on behalf of the plaintiffs in tobacco litigation, June 16, 1998. Affidavit in Opposition to Defendants' Motions for Summary Judgement, October 30, 1998.

CBS (Weil, Gotshal & Manges, New York)

CBS Inc. v. American Society of Composers, Authors & Publishers, New York State Supreme Court, New York County. Prepared Expert Report regarding timing of payments under ASCAP agreements, August 11, 1997. Deposition taken June 12, 1998. Addendum to Prepared Expert Report, December 1, 1998. Supplemental deposition, January 28, 1999.

Public Broadcasting System, National Public Radio, and the Corporation for Public Broadcasting (Weil, Gotshal & Manges, New York)

Prepared testimony regarding royalties for copyrighted musical compositions, *In the Matter of the Rates for Noncommercial Educational Broadcasting Compulsory License, Before the Copyright Arbitration Royalty Panels, Docket No. 96-6, CARP NCBRA, 1997.* Written testimony, April 1, 1998. Oral testimony, April 1-2, 1998. Rebuttal testimony, April 15, 1998. Oral rebuttal testimony, May 7, 1998.

State of Minnesota (Robins, Kaplan, Miller & Ciresi, Minneapolis, MN)

The State of Minnesota and Blue Cross and Blue Shield of Minnesota vs. Philip Morris Incorporated, et al., Court File No. C1-94-8565. Prepared Expert Witness Report on behalf of the plaintiffs in antitrust litigation involving allegations of collusive conspiracy, May 29, 1997. Deposition, taken June 26-27, 1997. Oral trial testimony, March 18-23, 1998.

PacifiCorp (Stoel Rives, Portland, OR)

PacifiCorp, Electric Restructuring Transition Plan, Before the Montana Public Service Commission, Docket No. D97.7.91. Prepared prefiled rebuttal testimony evaluating testimony regarding market power in the generation of electricity in Montana, February 24, 1998. Prefiled surrebuttal testimony, July 21, 1998.

PacifiCorp (Stoel Rives, Salt Lake City, UT)

Snake River Valley Electric Association v. PacifiCorp, United States District Court for the District of Idaho, Case No. CV 96-0308-E-BLW. Prepared Expert Witness Statement analyzing allegations of anticompetitive behavior (1997). Prepared Affidavit evaluating market power (1998).

Trans-Alaska Pipeline (Stephoe & Johnson, Washington, DC)

Prepared Affidavit and Rebuttal Affidavit evaluating the competitive impact of the Amended and Restated Capacity Settlement Agreement, Exxon Pipeline Co., et al., Application of TAPS Carriers for Approval of Amended and Restated Capacity Settlement Agreement, Before the Federal Energy Regulatory Commission, Docket No. OR96-1-000. et al. (1997)

The Burlington Northern and Santa Fe Railway Company (Stephoe & Johnson, Washington, DC)

Prepared Verified Statement regarding market power in transporting coal, In the Matter of Western Fuels Service Corporation v. The Burlington Northern and Santa Fe Railway Company, Before the Surface Transportation Board, STB Docket No. 41987. (1997)

PacifiCorp (Stoel Rives, Portland, OR)

Assisted in FTC pre-merger Hart-Scott-Rodino review; prepared Economic Analysis of Alleged Vertical Market Power Consequences of Merger of PacifiCorp and Peabody Coal. (1997)

Subaru of New England, Inc. (Todd & Weld, Boston, MA)

Subaru of New England, Inc., vs. Subaru of Wakefield, Inc., Civil Action No. 96-01475-A, Commonwealth of Massachusetts, Norfolk County, Superior Court Department. Prepared Affidavit regarding appropriate methodology for assessing competitive impact of dealer relocation, November 20, 1996.

Public Service Company of New Hampshire

Direct testimony before the State of New Hampshire Public Utilities Commission, Docket No DR 96-150, Electric Industry Restructuring, with Joseph P. Kalt, October 18, 1996.

Pro Se Testimony

United States of America before the Federal Energy Regulatory Commission "Alternatives to Traditional Cost-of-Service Ratemaking for Natural Gas Pipelines, Regulation of Negotiated Transportation Services of Natural Gas Pipelines," Docket No. RM-96-7-000. Comments of Adam B. Jaffe and Joseph P. Kalt, May 30, 1996.

Massachusetts Technology Collaborative

Prepared a study assessing the effects of reductions in federally-funded R&D on the Massachusetts economy. (1995-96)

Federal Trade Commission

Asked by Commission staff to prepare testimony for Hart-Scott-Rodino preliminary injunction hearing regarding anticompetitive impact of a proposed acquisition. (1995)

GAF Corporation, *et al.* (Hannoch Weisman, Roseland, NJ)

Joseph Rossi, et al., vs. Standard Roofing, et al., Civil Action No. 92-5377, United States District Court, District of New Jersey. Prepared Expert Witness Report on behalf of six defendants in antitrust litigation involving conspiracy and monopolization claims. (1995)

Connecticut Light and Power Company

Before the Connecticut Department of Public Utility Control, Investigation into Restructuring of the Electric Industry, Docket No. 94-12-13. Submitted written and oral hearing testimony. (1995)

New England X-Ray & Electronics Inc. (Kushner & Sanders, Wellesley, MA)

New England X-Ray & Electronics Inc. vs. Robert T. Kennedy, Inc., et al., Commonwealth of Massachusetts, Number 88-5532. Presented damages study and jury trial testimony regarding breach of contract. (1990-95)

Florida Gas Transmission Company

Written testimony before the Federal Energy Regulatory Commission, Docket No. RP95-103-000, supporting FGT's proposed flexible service offerings, inflation-indexed rate, and removal of regulatory constraints on the secondary market for pipeline capacity. (1995)

Burlington Northern Railroad Company (Steptoe & Johnson, Washington, DC)

Southwestern Electric Power Company, Plaintiff, vs. Burlington Northern Railroad Company, Defendant, in the 102nd Judicial District Court of Bowie County, Texas, No. D-102-CV-91-720. Presented oral trial testimony before a state court jury regarding the pricing provisions in two long-term coal transportation agreements, in defense against a claim by the shipper of overcharges resulting from the contract rates failing to reflect the railroads' productivity improvements. (1994)

Houston Lighting & Power Company

Written testimony before the Texas Public Utilities Commission, Docket No. 12065, regarding appropriate regulatory policy changes dictated by emerging competition in electricity markets. (1994)

Boston Ventures Management (Boston, MA)

Prepared a report for a venture capital firm on the adverse consequences on investment of the re-regulation of cable TV. (1994)

Kern River Gas Transmission Company (Salt Lake City, UT)

Before the Public Service Commission of Utah, Application of Mountain Fuel Supply Company for Approval of Modifications to its Tariff to Implement a Firm Transportation Rate, Docket No. 94-057-02. Prepared pre-filed direct and rebuttal testimony, as well as oral testimony, before the Public Service Commission of Utah regarding the appropriateness of a firm gas distribution tariff including within it costs of upstream pipeline transportation. (1994)

Burlington Northern Railroad Company (Steptoe & Johnson, Washington, DC)

In the Matter of the Arbitration between Public Service Company of Oklahoma and Burlington Northern Railroad Company. Delivered written and oral testimony concerning the interpretation of the pricing and renegotiation provisions of a long-term coal transportation agreement. (1994)

Arco Pipe Line Company (Steptoe & Johnson, Washington, DC)

Prepared written Comments in Response to Notice of Inquiry, Market-Based Ratemaking for Oil Pipelines, U.S. Federal Energy Regulatory Commission, Docket No. RM94-1-000. (1994)

Kern River Gas Transmission Company (Wright and Talisman, Washington, DC)

Before the Federal Energy Regulatory Commission In the Matter of Kern River Gas Transmission Company, Docket No. RP92 226-000. Delivered written and oral testimony regarding rate design for pipelines built under optional certificates. (1993)

ISK Biotech Corp. (Beveridge and Diamond, Washington, DC)

In the Matter of the Arbitration between ISK Biotech Corporation and Veterans Chemicals. prepared testimony regarding allocation rules and competitive impacts in an arbitration proceeding regarding data compensation under the Federal Insecticide, Fungicide and Rodenticide Act. (1993)

Geneva Steel Corp., et al. (Kimball, Parr, Waddoups, Brown & Gee, Salt Lake City, UT)

Before the Utah Public Service Commission Docket No. 93-057-01, written testimony regarding antitrust implications of LDC treatment of pipeline charges under FERC Order 636, on behalf of a coalition of interruptible shippers. (1993)

Enron Gas Services Corp.

Co-authored study analyzing appropriate Public Utility Commission policy towards utility procurement of natural gas and emissions allowances in developing competitive markets. (1993)

New York Power Authority

Prepared analysis and delivered public hearing testimony before the Board of Trustees regarding the economic consequences of below-market pricing for electricity. (1993)

Coalition of Non-Utility Generators

Co-authored study analyzing the effect of power from non-utility generators on electricity prices in New England. (1993)

U.S. Department of Commerce, Economics and Statistics Administration

Co-authored study analyzing the effect of U.S. environmental regulations on U.S. competitiveness. (1993)

International Energy Group

Before the Federal Energy Regulatory Commission, Docket No. PL91-1-000, prepared written testimony regarding electricity transmission access policy. (June 1991)

El Paso Natural Gas Co. (Andrews & Kurth, Washington, DC)

Before the Federal Energy Regulatory Commission, Docket No. CP88-434-000, prepared written testimony analyzing the extent of competition faced by El Paso as a seller of natural gas. (1989)

PUBLICATIONS AND RESEARCH

"The Cigarette Industry," in J. Brock, ed., *Structure of American Industry* (forthcoming).

"The U.S. Patent System in Transition: Policy Innovation and the Innovation Process," *Research Policy* (forthcoming 2000).

"The Regional Economic Impact of Public Research Funding: A Case Study of Massachusetts" (with Amy B. Candell), in L.M. Branscomb, F. Kodama, and R. Florida, eds., *Industrializing Knowledge: University-Industry Linkages in Japan and the United States*, MIT Press, 1999.

"The Induced Innovation Hypothesis and Energy-Saving Technological Change" (with R. Newell and R. Stavins), *Quarterly Journal of Economics*, August 1999.

"The Pipeline's View: FERC's Proposed Rule Misses" (with J. Lukens), *Public Utilities Fortnightly*, July 1, 1999.

"Special Issue on Geography and Innovation" (with R. Henderson), introduction to *Economics of Innovation and New Technology*, Vol. 8, 1999.

"International Knowledge Flows: Evidence from Patent Citations" (with M. Trajtenberg), *Economics of Innovation and New Technology*, Vol. 8, 1999.

Comment on "Inventors, Firms and the Market for Technology in the Late Nineteenth and Early Twentieth Centuries," in D. Raff, N. Lamoreaux and P. Temin, eds., *Learning by Doing in Markets, Firms, and Nations*, The University of Chicago Press, 1999.

"The Importance of 'Spillovers' in the Policy Mission of the Advanced Technology Program," *Journal of Technology Transfer*, Summer 1998.

"Inside the Pin-Factory: Empirical Studies Augmented by Manager Interviews: Introduction" (with Severin Borenstein and Joseph Farrell), *Journal of Industrial Economics*, June 1998.

"Evidence from Patents and Patent Citations on the Impact of NASA and Other Federal Labs on Commercial Innovation" (with Bruce A. Banks and Michael S. Fogarty), *Journal of Industrial Economics*, June 1998.

"Universities as a Source of Commercial Technology: A Detailed Analysis of University Patenting, 1965-1988" (with Rebecca Henderson and M. Trajtenberg), *Review of Economics and Statistics*, February 1998; also published in a slightly different form as "University Patenting Amid Changing Incentives for Commercialization" in G.B. Navaretti, P. Dasgupta, K.-G. Maler and D. Siniscalco, eds., *Creation and Transfer of Knowledge*, Springer, 1998.

"Measurement Issues," in L.M. Branscomb & J. Keller, eds., *Investing in Innovation*, MIT Press, 1998.

"University Versus Corporate Patents: A Window on the Basicness of Invention" (with M. Trajtenberg and R. Henderson), *Economics of Innovation and New Technology*, 1997.

"Environmental Regulation and Innovation: A Panel Data Study" (with K. Palmer), *Review of Economics and Statistics*, November 1997.

Review of *Green, Inc.*, by Frances Cairncross, *Journal of Economics Literature*, March 1997.

"Bounding the Effects of R&D: An Investigation Using Linked Establishment and Firm Data" (with J. Adams), *Rand Journal of Economics*, winter 1996

"Economic Analysis of Research Spillovers: Implications for the Advanced Technology Program," Economic Assessment Office, The Advanced Technology Program, National Institutes of Standards and Technology, U.S. Department of Commerce, November 1996.

"Flows of Knowledge from Universities and Federal Labs: Modelling the Flow of Patent Citations over Time and across Institutional and Geographic Boundaries" (with M. Trajtenberg), *Proceedings of the National Academy of Sciences*, Vol. 93, pp. 12671-12677, November 1996.

"Trends and Patterns in U.S. Research and Development Expenditures," *Proceedings of the National Academy of Sciences*, Vol. 93, pp. 12658-12663, November 1996.

"Should Electricity Markets Have A Capacity Requirement: If So, How Should It Be Priced?" (with F. Felder), *The Electricity Journal*, December 1996.

"Regional Localization of Technological Accumulation: Application to the Tri-State Region," *The Annals of the New York Academy of Sciences*, 1996.

Comment on "Cross-Country Variations in National Economic Growth Rates" by J. Bradford Delong, in *Technology and Growth*, J.C. Fuhrer and J. Sneddon Little, eds., Federal Reserve Bank of Boston Conference Series No. 40, June 1996.

"Regulatory Reform and the Economics of Contract Confidentiality: The Example of Natural Gas Pipelines" (with J. P. Kalt, S. T. Jones, and F. A. Felder), *Regulation*, 1996, No 1.

"Planning for Change, Preparing for Growth: Implications for Massachusetts of Reductions in Federal Research Spending" (with Amy B. Candell, Kenneth W. Grant, Michael Laznik, and Kelly T. Northrop), The Economics Resource Group, Inc., funded by the Massachusetts Technology Collaborative, February 1996.

"Incentive Regulation for Natural Gas Pipelines" (with J. Kalt), in Ellig, J. and J. P. Kalt, eds., *New Horizons in Natural Gas Deregulation*, Praeger, 1996.

"The Emerging Coexistence of Competition and Regulation in Natural Gas Transportation" (with S. Makowka), *Hume Papers on Public Policy*, 1995.

"On the Microeconomics of R&D Spillovers" (with J. Adams), in Louis Lefebvre, ed., *Technology Management*, Paul Chapman Publishing, Ltd., 1995.

"An Economic Analysis of Electricity Industry Restructuring in New England" (with J. P. Kalt), The Economics Resource Group, Inc., funded by Northeast Utilities System Companies, April 1995.

"Dynamic Incentives of Environmental Regulations: The Effects of Alternative Policy Instruments on Technology Diffusion" (with R. Stavins), *Journal of Environmental Economics and Management*, 1995.

"Environmental Regulation and the Competitiveness of U.S. Manufacturing: What Does the Evidence Tell Us?" (with S. Peterson, P. Portney and R. Stavins), *The Journal of Economic Literature*, 1995; reprinted in Alan M. Rugman and John J. Kirton, eds., *Trade and the Environment: Economic, Legal and Policy Perspectives*, Cheltenham, UK: Edward Elgar Publishing Limited, 1998.

Comment on "Taxes, Technology Transfer, and the R&D Activities of Multinational Firms" by James R. Hines, Jr., in Martin Feldstein, James R. Hines, Jr., and R. Glenn Hubbard, eds., *The Effects of Taxation on Multinational Corporations*, University of Chicago Press, 1995.

"The Energy-Efficiency Gap" (with R. Stavins), *Energy Policy*, 1994.

"The Investment Consequences of the Re-Regulation of Cable Television" (with W. Emmons and J. Taylor), The Economics Resource Group, Inc., Cambridge MA, 1994.

"Insight on Oversight" (with J. Kalt), *Public Utilities Fortnightly*, April 15, 1994.

"The Energy Paradox and the Diffusion of Conservation Technology" (with R. Stavins), *Resource and Energy Economics*, 1994.

"Energy-Efficiency Investments and Public Policy" (with R. Stavins), *The Energy Journal*, 1994.

"Prices, Regulation and Energy Conservation: An Econometric Analysis" (with R. Stavins), delivered at the Conference on Market Approaches to Environmental Regulation, Stanford University, December 1993.

Comment on "R&D and Market Value in the 1980s" by Bronwyn Hall, *Brookings Papers on Economic Activity, Microeconomics*, 1993.

"The Effect of Liquidity on Firms' R&D Spending" (with K. Hao), *Economics of Innovation and New Technology*, 1993.

"Geographic Localization of Knowledge Spillovers as Evidenced by Patent Citations" (with M. Trajtenberg and R. Henderson), *Quarterly Journal of Economics*, August 1993; reprinted in Small and Medium-Sized Enterprises in the Global Economy, Kluwer Academic Publishers (forthcoming).

"Environmental Regulations and the Competitiveness of U.S. Industry" (with S. Peterson, P. Portney, and R. Stavins), U.S. Department of Commerce, Economics and Statistics Administration, Washington, DC, NTIS No. PB-93-193514, July 1993.

"Oversight of Regulated Utilities' Fuel Supply Contracts: Achieving Maximum Benefit from Competitive Natural Gas and Emission Allowance Markets" (with J. P. Kalt), The Economics Resource Group, funded by Enron Gas Services Corporation, April 1993.

"Achieving Maximum Benefit from Competitive Natural Gas and Emission Allowance Markets" (with J. Kalt), *Proceedings of the U.S. Department of Energy/National Association of Regulatory Utility Commissioners Conference on Natural Gas Use, State Regulation and Market Dynamics in the Post 636/Energy Policy Act Era*, March 1993.

"The Diffusion of Energy-Conserving Windows: The Effect of Economic Incentives and Building Codes" (with R. Stavins), presented at the American Economic Association annual meeting, Anaheim CA, January 1993.

"How High are the Giants' Shoulders: An Empirical Assessment of Knowledge Spillovers and Creative Destruction in a Model of Economic Growth" (with R. Caballero), in O. Blanchard and S. Fischer, eds., *National Bureau of Economic Research Macroeconomics Annual, Vol. 8*, MIT Press, 1993; reprinted in Gene M. Grossman, ed., *Economic Growth: Theory and Evidence*, Vol. II, Cheltenham, UK: Edward Elgar Publishing Limited, 1996.

Review of *Investing in the Future*, by John Irvine, et al., *Journal of Economic Literature*, June, 1992.

Review of Productivity and U.S. Economic Growth by D. Jorgenson, et al., *Business History Review*, 1991.

"Evaluating the Relative Effectiveness of Economic Incentives and Direct Regulation for Environmental Protection: Impacts on the Diffusion of Technology" (with R. Stavins), *CSIA Discussion Paper No. 91-1*, Center for Science and International Affairs, Environment and Natural Resources Program, John F. Kennedy School of Government, Harvard University, February 1991.

"Economic Evaluation of Policy Options for Global Climate Change: Some Methodological Reflections," Center for Energy and Environmental Policy, John F. Kennedy School of Government, Harvard University, August 1990.

"Market Power of Local Cable Television Franchises: Evidence from the Effects of Deregulation" (with D. Kanter), *Rand Journal of Economics*, summer 1990.

"Unintended Impacts of Public Investments on Private Decisions: The Depletion of Forested Wetlands" (with R. Stavins), *American Economic Review*, June 1990.

"Universities and Regional Patterns of Commercial Innovation," *REI Review*, Center For Regional Economic Issues, Case-Western Reserve University, 1989.

"Real Effects of Academic Research," *American Economic Review*, December 1989; reprinted in Paula E. Stephan and David B. Audretsch, eds., *The Economics of Science and Innovation*, Cheltenham, UK: Edward Elgar Publishing Limited (forthcoming 2000).

"Characterizing the 'Technological Position' of Firms, with Application to Quantifying Technological Opportunity and Research Spillovers," *Research Policy*, 1987.

"Demand and Supply Influences in R&D Intensity and Productivity Growth," *Review of Economics and Statistics*, August 1988.

"Technological Opportunity and Spillovers of R&D: Evidence from Firms' Patents, Profits and Market Value," *American Economic Review*, December 1986; reprinted in *The International Library of Critical Writings in Economics*, Mark Blaug, ed., Edward Elgar Publishing Limited (forthcoming).

"Who Does R&D and Who Patents" (with J. Bound, et al.), in Z. Griliches, ed., *R&D, Patents and Productivity*, University of Chicago Press, 1984.

"Benefit-Gost Analysis and Multi-Objective Evaluation of Federal Water Projects," *Harvard Environmental Law Review*, 1980.

"Preventing Groundwater Pollution: Towards a Coordinated Strategy to Protect Critical Recharge Zones (with J.T.B. Tripp), *Harvard Environmental Law Review*, 1979.

WORKING PAPERS

"The U.S. Patent System in Transition: Policy Innovation and the Innovation Process," paper prepared for the *Research Policy* Symposium on Technology Policy, July 1999.

"Market Value and Patent Citations: A First Look" (with B. Hall and M. Trajtenberg), presented at the NBER Conference Celebrating Zvi Griliches' 20 Years as Director of the Productivity Program, March 1999.

"Privatizing R&D: Patent Policy and the Commercialization of National Laboratory Technologies" (with J. Lerner), NBER Working Paper No. 7064, presented at the NBER Conference on the Patent System and Innovation, January 1999.

OTHER PROFESSIONAL ACTIVITIES

Member, National Academy of Engineering Committee on the Impact of Academic Research on Industrial Performance, 1998-present

Lead author, Third Assessment Report, Intergovernmental Panel on Climate Change, 1998-present

Associate Editor, *Rand Journal of Economics*, 1997-present

Associate Editor, *Journal of Industrial Economics*, 1995-present

Co-organizer of the NBER Science and Technology Policy Research Workshop, 1995-present

Member, Board of Editors, *American Economic Review*, 1994-present

Member, Economics Roundtable, Advanced Technology Program, U.S. National Institute of Standards and Technology

Member, Stanford Energy Modeling Forum, Working Group on Competitive Electricity Markets (EMF 15)

Member, 'Economic Impact Committee, Association of University Technology Managers, 1995-1995

Contributing Author, Working Group III (socioeconomics) of the Intergovernmental Panel on Climate Change (IPCC), 1993-1994

Member, Stanford Energy Modeling Forum, Working Group on Energy Conservation (EMF 13), 1992-94

Referee for *American Economic Review*, *Econometrica*, *Economic Inquiry*, *Economic Journal*, *Economics of Innovation and New Technology*, *Journal of Applied Econometrics*, *Journal of Economics Organization and Management*, *Journal of Environmental Economics and Management*, *Journal of Health Economics*, *Journal of Industrial Economics*, *Journal of Law and Economics*, *Journal of Political Economy*, *Quarterly Journal of Economics*, *Rand Journal of Economics*, *Research Policy*, *Review of Economics and Statistics*, *Science*, and MIT Press.

TEACHING EXPERIENCE

Introductory Economics (undergraduate), Microeconomic Theory (Ph.D.), Industrial Organization (Ph.D. and undergraduate), Government Regulation and Antitrust Policy (Ph.D.), Applied Welfare Economics (John F. Kennedy School of Government), R&D, Innovation and Productivity Growth (undergraduate), Research Seminar in Industrial Organization (undergraduate), Research Seminar in Applied Microeconomics (undergraduate), Economics Head Tutor and Course Head, Sophomore Tutorial

Designed and implemented a two-year Policy Analysis Lecture Series for the U.S. Army Corps of Engineers, New England Division, Regulatory Branch (1988-89)

HONORS AND AWARDS

Faculty Research Fellow, 1985-1994; Research Associate, 1994-present; National Bureau of Economic Research

Co-Principal Investigator, Department of Energy Research Grant, "Energy-Efficiency Innovation and the Economic and Regulatory Environment," 1995-1998

Project Director, National Science Foundation Research Grant, "Using Patent Citation Data to Trace Knowledge Flows," 1994-97

Project Director, National Science Foundation Research Grant, "The Sources and Effects of Knowledge Spillovers," 1994-97

Invited Speaker, National Academy of Sciences Symposium: *Science and the Economy*, April 1994

Co-Principal Investigator, National Science Foundation Research Grant, "Getting Down to Basics: Using University and Corporate Patents to Identify Basic Inventions and Trace Their Diffusion," 1991-92

Co-Principal Investigator, Environmental Protection Agency Exploratory Research Grant, "Evaluating the Relative Effectiveness of Economic Incentives and Direct Regulation for Environmental Protection: Impacts on the Diffusion of Technology," 1991-93

Alfred P. Sloan Dissertation Fellowship, Harvard, 1984-85

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Adam B. Jaffe

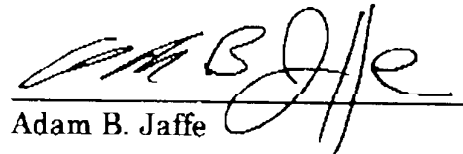
Alfred P. Sloan Research Fellowship, MIT, 1976-77

Phi Beta Kappa, 1976

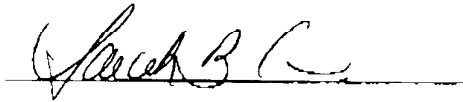
AFFIDAVIT

COMMONWEALTH OF MASSACHUSETTS
COUNTY OF MIDDLESEX

ADAM B. JAFFE, being duly sworn, states that he has read the foregoing affidavit and the contents thereof are true and correct to the best of his knowledge, information, and belief.


Adam B. Jaffe

Sworn to and subscribed
before me this 25th day
of January, 2000.



My commission expires

12/21/2001

